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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,747	07/08/2002	Bartolomomeus Johannes Le Roux Cilliers	452010-2380	3100

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EXAMINER
DAVIS, OCTAVIA L

ART UNIT	PAPER NUMBER
2855	

DATE MAILED: 07/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/089,747	LE ROUX CILLIERS ET AL.	
	Examiner	Art Unit	
	Octavia Davis	2855	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 37-71 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 37-71 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Acknowledgment is made of applicant's preliminary amendment filed 7/8/02.

Inventorship

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

3. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.

(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)

(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 37 - 39, 43 - 52, 54, 57 – 66 and 69 are rejected under 35 U.S.C. 102(b) as being anticipated by Leon et al.

Regarding claims 37, 39, 43, 48, 52, 54, 60 and 61, Leon et al disclose a system and method for determining shaft parameters including shaft windup angle per unit length comprising a shaft 12 which is caused to deform, establishing a time period between a time moment, teeth 16 affixed to the shaft, sensors 34 sensing the passing of the leading edge of the teeth as the shaft rotates,

measuring sensors 36 positioned at a measuring point on the shaft, a clock 50, means for measuring shaft speed (See Col. 10, lines 52 – 60), a processor 48 establishing a time period between a time moment, establishing a length of the shaft over which the torque is applied and calculating a twist in the shaft on the basis of the difference between the measuring time period and the time period (See Cols. 3 and 6, lines 25 – 28 and 21 – 29).

Regarding claims 38 and 53, a torque point and a load point being longitudinally spaced, the shaft 12 undergoing twisting between the torque point and the load point, one of the measuring point and the datum point being positioned along the stressed portion, the other point being positioned in a relaxed portion of the shaft (See Col. 7, lines 37 – 52).

Regarding claims 44 and 57, the shaft being a main shaft of a gas turbine engine (See Col. 13, lines 4 – 9).

Regarding claims 45, 46, 58 and 59, one of or a plurality of the points being on a vane of a compressor and a turbine (See Col. 13, lines 10 – 22).

Regarding claim 47, establishing the time moments including triggering a sensor at the datum station and the measuring station using triggers the either one of the datum point or the measuring point (See Col. 6, lines 21 – 34).

Regarding claims 49 and 62, the triggers are optically detectable surfaces, and the sensors 34 sense the passing of the triggers.

Regarding claims 50 and 51, sensing the time moment when a datum point on the shaft passes the stationary datum station, sensing an arrival time moment of the measuring point and comparing the measuring time period with a computed time period and calculating the twist in the shaft on the basis of a time lag (See Col. 7, lines 3 – 36).

Regarding claims 63 - 65, the processor calculating the torque based on the measuring twist including a pre-established length of the shaft and pre-established, empirically determined, physical characteristics of the shaft.

Regarding claims 66 and 69, the processor 48 comparing the measured torque quantity to a predetermined standard value of the quantity, determining any deviation between the quantities and controlling an operating function of the engine based on the deviation (See Col. 8, lines 21 – 39).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 40 – 42, 55 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leon et al in view of Moine et al.

Regarding claims 40, 56, 67, 68, 70 and 71, Leon et al lack the engine including a ring gear having gear teeth at one end of the shaft and a disc at an opposed end of the shaft, a data point being on the disc and the measuring point being on a gear tooth of the ring gear. However, Moine et al disclose a device for measuring the torque in an engine comprising a circuit 10 including a toothed measurement ring gear 12 which is integrally connected to the flywheel of an engine with electronic ignition, the ring gear 12 having a plurality of teeth 14, 16, 18, 20 (See Col. 6, lines 46 – 65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Leon et al according to the teachings of Moine et al for the purpose of, aiding in the operation of a circuit for the measurement of the corrected mean gas torque (See Moine et al, Col. 11, lines 12 – 23).

Regarding claims 41 and 55, Leon et al lack a plurality of measuring points on corresponding gear teeth and a plurality of data points circumferentially spaced on the disc. However, in Moine et al, a fixed sensor 22 is associated with the plurality of measuring teeth (See Col. 7, lines 4 – 9).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Leon et al according to the teachings of Moine et al for the purpose of, delivering an alternating signal with a frequency proportional to the rate of passage of the teeth of the ring gear (See Moine et al, Col. 11, lines 41 – 46).

Regarding claim 42, Leon et al lack the engine including a plurality of cylinders. However, in Moine et al, the engine is a four-stroke four-cylinder engine (See Col. 6, lines 46 – 50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Leon et al according to the teachings of Moine et al for the purpose of, producing a value representative of the mean gas torque generated by each combustion of the mixture in the cylinders of the engine (See Moine et al, Col. 1, lines 14 – 18).

8. Any inquiry concerning this communication should be directed to examiner Octavia Davis at telephone number (703) 306 - 5896. The examiner can normally be reached on Monday - Thursdays (9:00 - 5:00), Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz, can be reached on (703) 305 - 4816. The fax phone

number for the organization where this application where this application or proceeding is assigned is (703) 746 - 4409.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 - 0956.

OD/2855

July 8, 2003

EDWARD LEFKOWITZ
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